REMARKS/ARGUMENTS

Claims 1-35 are pending in the application. Claims 1-3, 8-10, and 15-18 are amended, and new claims 21-35 are added herein. The Applicant hereby requests further examination and reconsideration of the application in view of the foregoing amendments and these remarks.

In paragraph 2, the Examiner rejected claims 1, 3-8, 10-15, and 17-20 under 35 U.S.C. 102(e) as being anticipated by Dunton. In paragraph 12, the Examiner rejected claims 2, 9, and 16 under 35 U.S.C. 103(a) as being unpatentable over Dunton in view of Moberly. For the following reasons, the Applicant submits that all of the pending claims are allowable over the cited references.

Claims 1-35

Independent claims 1, 8, and 15 have been amended to clarify that (1) the image sensor and the memory are implemented in a single integrated circuit and (2) the image sensor is a digital pixel sensor configured to generate digital image data corresponding to an image of a scene for storage in the memory. In addition, the processor is configured to control operations of the imaging system in a diagnostic mode and in a normal operating mode, wherein, during the diagnostic mode, the processor analyzes the digital image data to determine if the image sensor is defective. The cited references do not teach or even suggest such a combination of features.

Dunton teaches an analog image sensor (i.e., CMOS sensor embodiment **105**) that generates analog voltage signals, not a digital image sensor that generates digital image data, as in amended claims 1, 8, and 15. See, e.g., Fig. 2 and column 3, lines 1-23, which describes how the pixels in CMOS sensor embodiment **105** generate voltages, clearly indicating that Dunton's image sensor is an analog sensor.

Moreover, in Dunton, the memory (i.e., storage device **140**) is located off-chip. See, e.g., Fig. 1. Since Dunton's image sensor generates voltages, an external analog-to-digital (A/D) converter would be used to convert the analog voltage signals to digital image data for storage in off-chip storage device **140**. Consistently and repeatedly throughout his specification, Dunton teaches that storage device **140** and sensor **105** are separate components of digital camera **130**.

In rejecting original claims 2, 9, and 16, in paragraph 12, the Examiner admitted that "Dunton fails to teach the memory and the processor being implemented as a SOC." The Examiner goes on to cite Moberly as teaching SOCs having processors and memory. Significantly, the Examiner ignored the fact that, in original claims 2, 9, and 16, the image sensor, the memory, and the processor are all implemented as a system-on-a-chip (SOC) in a single integrated circuit.

As described above, Dunton teaches an analog image sensor where the memory is implemented off-chip. Moberly does not even mention a system having an image sensor, let alone a system in which an image sensor and a memory are implemented in a single integrated circuit.

In the embodiment of a digital pixel sensor shown in Fig. 4, analog signals are immediately converted to the digital domain before they are read out from the individual pixel elements **404**. The resulting digital image data is stored into the on-chip memory, thereby making efficient use of the data memory.

The cited references, whether considered alone or in combination, simply do not teach or even suggest an imaging system comprising an image sensor, a memory, and a processor, wherein (1) the image sensor and the memory are implemented in a single integrated circuit and (2) the image sensor is a

digital pixel sensor configured to generate digital image data corresponding to an image of a scene for storage in the memory, as recited in claims 1, 8, and 15.

For all these reasons, the Applicant submits that claims 1, 8, and 15 are allowable over the cited references. Since the rest of the claims depend variously from claims 1, 8, and 15, it is further submitted that those claims are also allowable over the cited references. In view of the foregoing, the Applicant submits that the rejections of claims under 35 U.S.C. 102(e) and 103(a) have been overcome.

Claims 21-23 and 30-35

According to claims 21-23, 30, 32, and 34, prior to operating the image sensor in the normal operating mode, no physical modifications are made to the image sensor in response to identifying one or more defective pixels in the image sensor during the diagnostic mode. Dunton explicitly teaches that the identified defective pixels are physically modified, e.g., by burning out a fuse in an interrogation line associated with the pixel, prior to normal operations. See column 2, lines 23-40; block 320 of Fig. 3; and fuse burner **515** of Fig. 5. The Applicant submits that this provides additional reasons for the allowability of claims 21-23 and 30-35 over the cited references.

Claims 24-26, 31, 33, and 35

According to claims 24-26, 31, 33, and 35, no diagnostic testing is performed on the image sensor to identify one or more defective pixels in the image sensor prior to assembling the image sensor into a packaged image sensor. In Dunton, the diagnostic testing to identify defective pixels has to be performed before the image sensor is assembled into a packaged image sensor because the defective pixels need to be modified, e.g., by burning out a fuse in an interrogation line in the image sensor. Such pixel modification according to Dunton would be performed before packaging the image sensor. As such, the diagnostic testing to identify the defective pixels would have to be performed prior to such packaging.

In fact, Dunton teaches two different diagnostic test procedures. The first test procedure (Figs. 3 and 5 in Dunton) is performed on the analog sensor before it is packaged into the digital camera. During this procedure, defective pixels are identified and marked by physically modifying the sensor, e.g., by blowing fuses in the corresponding pixel interrogation lines (col. 2, lines 32-40, and Fig. 5). The second test procedure (Fig. 4) is performed after the analog sensor has been packaged into the digital camera. During this procedure, the physical alterations of the first test procedure are used to create a map of defective pixels for storage in the (off-chip) memory of the imaging system.

The Applicant submits that this provides additional reasons for the allowability of claims 24-26, 31, 33, and 35 over the cited references.

In view of the above amendments and remarks, the Applicant believes that the pending claims are in condition for allowance. Therefore, the Applicant believes that the entire application is now in condition for allowance, and early and favorable action is respectfully solicited.

Respectfully submitted,

Date: 5/21/03

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